Trend Study 19A-9-02

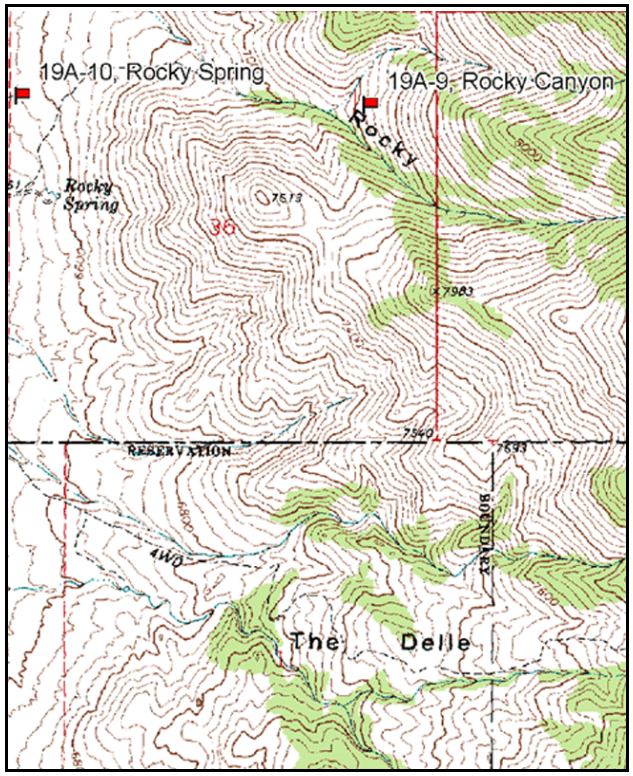
Study site name: Rocky Canyon  Vegetation type: Mountain Big Sagebrush

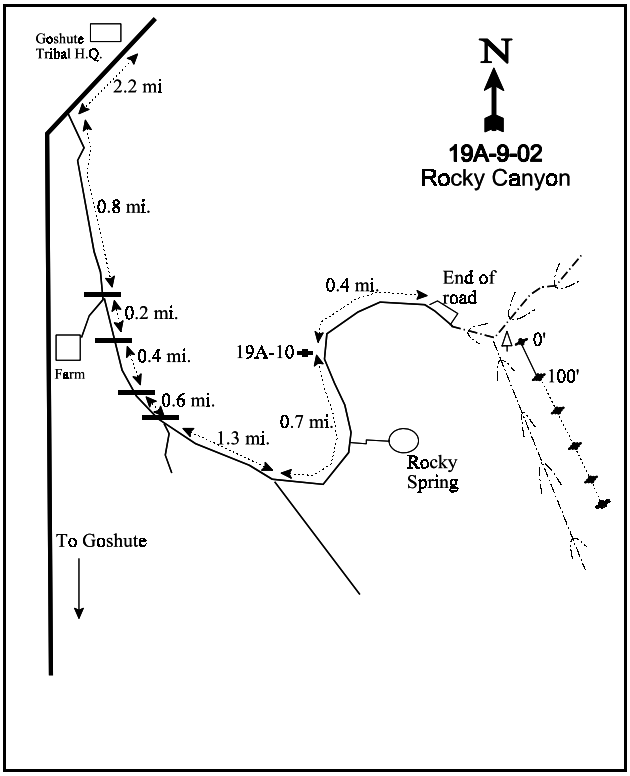
Compass bearing: frequency baseline 110 degrees magnetic.

Frequency belt placement: line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), and line 5 (95ft). Rebar: belt 3 on 1ft.

LOCATION DESCRIPTION

From Ibapah, proceed southeast for ~5.11 miles to a road on the left (southeast) or from the Goshute Tribal Headquarters the road is 2.2 miles further south. Proceed on this road for 0.8 miles to a fence crossing the road and farm. Go through the fence to another fence 0.2 miles further. Go 0.4 miles to another fence with a big gate. Go 0.6 miles to road to the south crossing a gate just before the road. From the intersection, continue on previously travel road for another 1.3 miles to a road going southeast. Continue on main road for 0.7 miles to a witness post on the left side of the road. This witness post is for 19A-10. From the witness post, go 0.4 miles to the end of the road. Park here and walk easternly in the drainage. The drainage will split, from here walk 200 feet eastward out of the drainage toward a lone juniper. The 0-foot stake is 20ft east of the juniper. The 0-foot stake is marked by browse tag #413.




Map Name: Goshute  Diagrammatic Sketch

Township 10S , Range 19W , Section 36  GPS: NAD 27, UTM 12S 4422440 N 249606 E

## DISCUSSION

### Rocky Canyon - Trend Study No. 19A-9

This study was established in 2002 to monitor elk use on the west side of the Deep Creek Mountains. This area is a natural travel corridor for elk that move down in to the lower flats during winter months. The site lies on a moderately steep (34%), southwest facing slope at an elevation of 7,200 feet. This study monitors a mountain big sagebrush-grass community. A pellet group transect read on site in 2002 estimated 25 elk days use/acre (63 edu/ha), 16 deer days use/acre (40 ddu/ha), and 4 cow days use/acre (9 cdu/ha). Cattle were grazing the area quite heavily when the site was established, especially within the canyon bottom leading up to the site. Most of the deer and elk pellets were from winter and spring.

Soils on the site are loam in texture and slightly acidic in reactivity (pH of 6.4). Soils are very rocky both on the surface and throughout the profile. They are moderately shallow with an effective rooting depth of less than 10 inches. Vegetation and litter cover are abundant and minimize erosion even with the steepness of slope. Bare soil was low at under 10% in 2002. The erosion condition class was determined as stable in 2002.

The browse component is dominated by mountain big sagebrush. Mountain big sagebrush density was estimated at 5,340 plants/acre in 2002, and total canopy cover was estimated at over 24%. The population showed mostly light use, moderate decadence (21%), and low recruitment (6%). Thirteen percent of the population displayed poor vigor in 2002. Annual leader growth averaged just under 2 inches. Black sagebrush had an estimated density of 440 plants/acre in 2002. The population showed light use, good vigor, and moderate decadence. Mountain lover density was estimated at 2,400 plants/acre in 2002 with light use and good vigor. Other browse sampled on the site include rubber rabbitbrush, slenderbush eriogonum, broom snakeweed, Oregon grape, and pediocactus.

The herbaceous understory has only fair diversity. Bluebunch wheatgrass, Sandberg bluegrass, and mutton bluegrass provided respectively 42%, 31%, and 18% of the grass cover in 2002. Bluebunch wheatgrass showed light to moderate use. Cheatgrass was sampled in one-third of the quadrats in 2002 and provided 8% of the grass cover on the site. Silvery lupine dominated the forb component as it contributed 77% of the forb cover or 9% of the total vegetation cover on the site. Much of the lupine on the site was dried up and had been utilized by crickets in 2002.

### 2002 APPARENT TREND ASSESSMENT

The soils have good protective cover from vegetation and litter cover, and erosion is low. The erosion condition class was stable in 2002. Mountain big sagebrush is dense and has high canopy cover. The population is mostly mature and shows mostly light use. Trend appears stable. The herbaceous understory has only fair diversity and abundance. Bluebunch wheatgrass, Sandberg bluegrass, mutton bluegrass, and silvery lupine are the most abundant species. Annual grasses and forbs are present but not particularly abundant. The abundance of sagebrush on the site may be suppressing understory species, but that is difficult to determine until the next reading.

HERBACEOUS TRENDS --
Herd unit 19A, Study no: 9

| Type | Species | Nested Frequency '02 | Quadrat Frequency '02 | Average Cover % '02 |
|---|---|---|---|---|
| G | Agropyron spicatum | 108 | 38 | 6.46 |
| G | Bromus tectorum (a) | 84 | 33 | 1.27 |
| G | Poa bulbosa | 9 | 5 | .17 |
| G | Poa fendleriana | 99 | 36 | 2.75 |
| G | Poa secunda | 214 | 76 | 4.73 |
| Total for Annual Grasses | | 84 | 33 | 1.27 |
| Total for Perennial Grasses | | 430 | 155 | 14.11 |
| Total for Grasses | | 514 | 188 | 15.39 |
| F | Agoseris glauca | 3 | 1 | .00 |
| F | Balsamorhiza hookeri | - | - | .00 |
| F | Chaenactis douglasii | 3 | 1 | .03 |
| F | Comandra pallida | 12 | 5 | .07 |
| F | Collinsia parviflora (a) | 91 | 34 | .37 |
| F | Epilobium brachycarpum (a) | 4 | 2 | .01 |
| F | Eriogonum brevicaule | 2 | 2 | .01 |
| F | Hackelia patens | 7 | 6 | .05 |
| F | Lupinus argenteus | 94 | 42 | 4.01 |
| F | Machaeranthera canescens | 3 | 2 | .06 |
| F | Microsteris gracilis (a) | 2 | 1 | .00 |
| F | Petradoria pumila | 3 | 1 | .38 |
| F | Phlox longifolia | 15 | 7 | .06 |
| F | Unknown forb-perennial | 15 | 8 | .14 |
| Total for Annual Forbs | | 97 | 37 | 0.38 |
| Total for Perennial Forbs | | 157 | 75 | 4.83 |
| Total for Forbs | | 254 | 112 | 5.22 |

BROWSE TRENDS --
Herd unit 19A, Study no: 9

| Type | Species | Strip Frequency '02 | Average Cover % '02 |
|---|---|---|---|
| B | Artemisia nova | 5 | .74 |
| B | Artemisia tridentata vaseyana | 90 | 20.95 |
| B | Chrysothamnus nauseosus hololeucus | 1 | .03 |
| B | Eriogonum microthecum | 4 | .00 |
| B | Gutierrezia sarothrae | 15 | .63 |
| B | Juniperus osteosperma | 1 | - |
| B | Juniperus scopulorum | 1 | - |
| B | Mahonia repens | 39 | .87 |
| B | Pachistima myrsinites | 8 | 1.36 |
| B | Pediocactus simpsonii | 1 | .03 |
| B | Pinus monophylla | 1 | - |
| Total for Browse | | 166 | 24.62 |

CANOPY COVER -- LINE INTERCEPT
Herd unit 19A, Study no: 9

| Species | Percent Cover '02 |
|---|---|
| Artemisia nova | 2.67 |
| Artemisia tridentata vaseyana | 24.58 |
| Gutierrezia sarothrae | 1.08 |
| Mahonia repens | .75 |
| Pachistima myrsinites | 1.67 |

Key Browse Annual Leader Growth
Herd unit 19A , Study no: 9

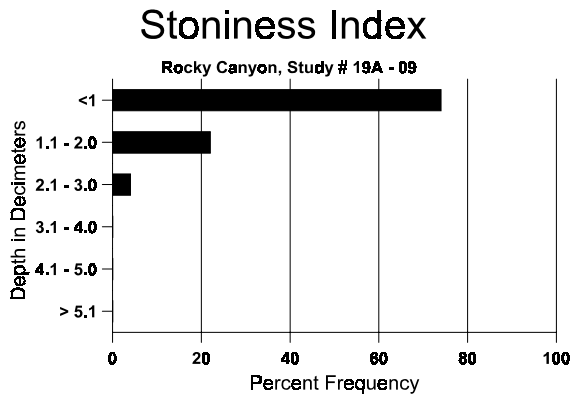
| Species | Average leader growth (in) '02 |
|---|---|
| Artemisia tridentata vaseyana | 1.9 |

BASIC COVER --
Herd unit 19A, Study no: 9

| Cover Type | Nested Frequency '02 | Average Cover % '02 |
|---|---|---|
| Vegetation | 377 | 42.00 |
| Rock | 330 | 27.06 |
| Pavement | 197 | 4.01 |
| Litter | 442 | 33.46 |
| Cryptogams | 29 | .33 |
| Bare Ground | 195 | 9.78 |

SOIL ANALYSIS DATA --
Herd Unit 19A, Study no: 9, Rocky Canyon

| Effective rooting depth (in) | Temp °F (depth) | pH | %sand | %silt | %clay | %0M | PPM P | PPM K | dS/m |
|---|---|---|---|---|---|---|---|---|---|
| 9.7 | 63.6 (11.5) | 6.4 | 41.3 | 34.7 | 24.0 | 4.7 | 19.0 | 361.6 | 0.7 |




PELLET GROUP FREQUENCY --
Herd unit 19A, Study no: 9

| Type | Quadrat Frequency '02 | Pellet Transect | |
|---|---|---|---|
| | | Pellet Groups per Acre '02 | Days Use per Acre (ha) '02 |
| Rabbit | 3 | - | - |
| Elk | 15 | 331 | 25 (63) |
| Deer | 6 | 209 | 16 (40) |
| Cattle | - | 44 | 4 (9) |

BROWSE CHARACTERISTICS --
Herd unit 19A, Study no: 9

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Artemisia nova | | | | | | | | | | | | | | | | | | |
| Y | 02 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| M | 02 | 17 | - | - | - | - | - | - | - | - | 17 | - | - | - | 340 | 8 | 18 | 17 |
| D | 02 | 4 | - | - | - | - | - | - | - | - | 3 | - | - | 1 | 80 | | | 4 |
| % Plants Showing '02 | | Moderate Use 00% | | Heavy Use 00% | | Poor Vigor 05% | | | | | | | | | %Change | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | '02 | | 440 | Dec: | | 18% |
| Artemisia tridentata vaseyana | | | | | | | | | | | | | | | | | | |
| Y | 02 | 16 | - | - | 1 | - | - | - | - | - | 17 | - | - | - | 340 | | | 17 |
| M | 02 | 175 | 12 | 6 | - | - | - | - | - | - | 190 | - | - | 3 | 3860 | 21 | 31 | 193 |
| D | 02 | 44 | 6 | 2 | 2 | 3 | - | - | - | - | 25 | - | 1 | 31 | 1140 | | | 57 |
| X | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 700 | | | 35 |
| % Plants Showing '02 | | Moderate Use 08% | | Heavy Use 03% | | Poor Vigor 13% | | | | | | | | | %Change | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | '02 | | 5340 | Dec: | | 21% |
| Chrysothamnus nauseosus hololeucus | | | | | | | | | | | | | | | | | | |
| M | 02 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | 17 | 4 | 1 |
| % Plants Showing '02 | | Moderate Use 00% | | Heavy Use 00% | | Poor Vigor 00% | | | | | | | | | %Change | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | '02 | | 20 | Dec: | | - |
| Chrysothamnus viscidiflorus viscidiflorus | | | | | | | | | | | | | | | | | | |
| M | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 16 | 16 | 0 |
| % Plants Showing '02 | | Moderate Use 00% | | Heavy Use 00% | | Poor Vigor 00% | | | | | | | | | %Change | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | '02 | | 0 | Dec: | | - |
| Eriogonum microthecum | | | | | | | | | | | | | | | | | | |
| Y | 02 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| M | 02 | 5 | - | - | - | - | - | - | - | - | 4 | 1 | - | - | 100 | 7 | 13 | 5 |
| % Plants Showing '02 | | Moderate Use 00% | | Heavy Use 00% | | Poor Vigor 00% | | | | | | | | | %Change | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | '02 | | 120 | Dec: | | - |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gutierrezia sarothrae | | | | | | | | | | | | | | | | | | |
| M | 02 | 30 | - | - | - | - | - | - | - | - | 28 | 1 | 1 | - | 600 | 8 | 12 | 30 |
| D | 02 | 2 | - | - | - | - | - | - | - | - | 1 | - | - | 1 | 40 | | | 2 |
| % Plants Showing '02 | | Moderate Use 00% | | | | Heavy Use 00% | | | | | Poor Vigor 06% | | | | | %Change | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | '02 | | 640 | Dec: | | 6% |
| Juniperus osteosperma | | | | | | | | | | | | | | | | | | |
| M | 02 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | - | - | 1 |
| % Plants Showing '02 | | Moderate Use 00% | | | | Heavy Use 00% | | | | | Poor Vigor 00% | | | | | %Change | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | '02 | | 20 | Dec: | | - |
| Juniperus scopulorum | | | | | | | | | | | | | | | | | | |
| Y | 02 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| % Plants Showing '02 | | Moderate Use 00% | | | | Heavy Use 00% | | | | | Poor Vigor 00% | | | | | %Change | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | '02 | | 20 | Dec: | | - |
| Mahonia repens | | | | | | | | | | | | | | | | | | |
| Y | 02 | 9 | - | - | - | - | - | - | - | - | 8 | 1 | - | - | 180 | | | 9 |
| M | 02 | 222 | - | - | 36 | - | - | 11 | - | - | 216 | 16 | 37 | - | 5380 | 3 | 4 | 269 |
| D | 02 | 21 | - | - | 1 | - | - | - | - | - | 2 | - | - | 20 | 440 | | | 22 |
| X | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 140 | | | 7 |
| % Plants Showing '02 | | Moderate Use 00% | | | | Heavy Use 00% | | | | | Poor Vigor 19% | | | | | %Change | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | '02 | | 6000 | Dec: | | 7% |
| Pachistima myrsinites | | | | | | | | | | | | | | | | | | |
| S | 02 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| Y | 02 | 2 | - | - | - | - | - | - | - | - | 1 | - | - | - | 40 | | | 2 |
| M | 02 | 104 | - | - | 11 | - | - | - | - | - | 115 | - | - | - | 2300 | 3 | 8 | 115 |
| D | 02 | 3 | - | - | - | - | - | - | - | - | 1 | - | - | 2 | 60 | | | 3 |
| % Plants Showing '02 | | Moderate Use 00% | | | | Heavy Use 00% | | | | | Poor Vigor 02% | | | | | %Change | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | '02 | | 2400 | Dec: | | 3% |
| Pediocactus simpsonii | | | | | | | | | | | | | | | | | | |
| M | 02 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | 2 | 2 | 1 |
| % Plants Showing '02 | | Moderate Use 00% | | | | Heavy Use 00% | | | | | Poor Vigor 00% | | | | | %Change | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | '02 | | 20 | Dec: | | - |

| AGE | YR | Form Class (No. of Plants) 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Vigor Class 1 | 2 | 3 | 4 | Plants Per Acre | Average (inches) Ht. | Cr. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pinus monophylla | | | | | | | | | | | | | | | | | | |
| S | 02 | - | - | - | - | - | - | 2 | - | - | 2 | - | - | - | 40 | | | 2 |
| Y | 02 | 1 | - | - | - | - | - | - | - | - | 1 | - | - | - | 20 | | | 1 |
| % Plants Showing '02 | | | Moderate Use 00% | | | Heavy Use 00% | | | Poor Vigor 00% | | | | | | %Change | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | '02 | | 20 | Dec: | | - |
| Purshia tridentata | | | | | | | | | | | | | | | | | | |
| M | 02 | - | - | - | - | - | - | - | - | - | - | - | - | - | 0 | 29 | 90 | 0 |
| % Plants Showing '02 | | | Moderate Use 00% | | | Heavy Use 00% | | | Poor Vigor 00% | | | | | | %Change | | | |
| Total Plants/Acre (excluding Dead & Seedlings) | | | | | | | | | | | | | '02 | | 0 | Dec: | | - |